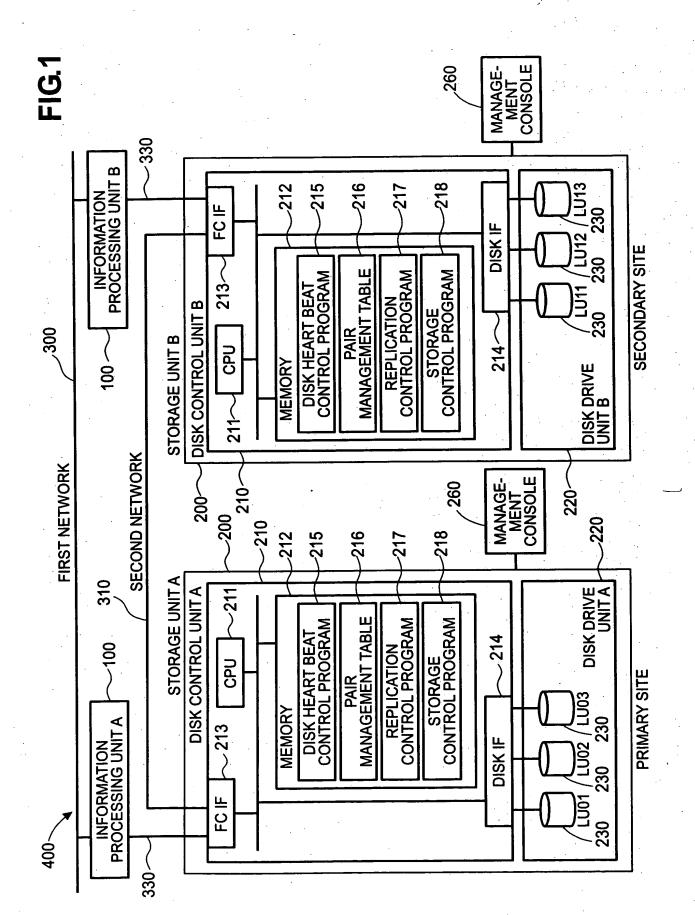
Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 1 of 19



(650) 326-2400

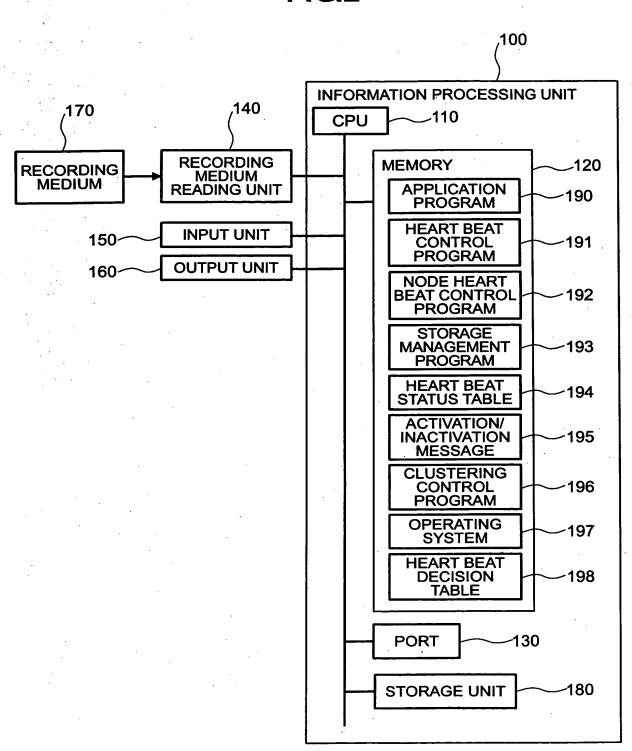
Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 2 of 19

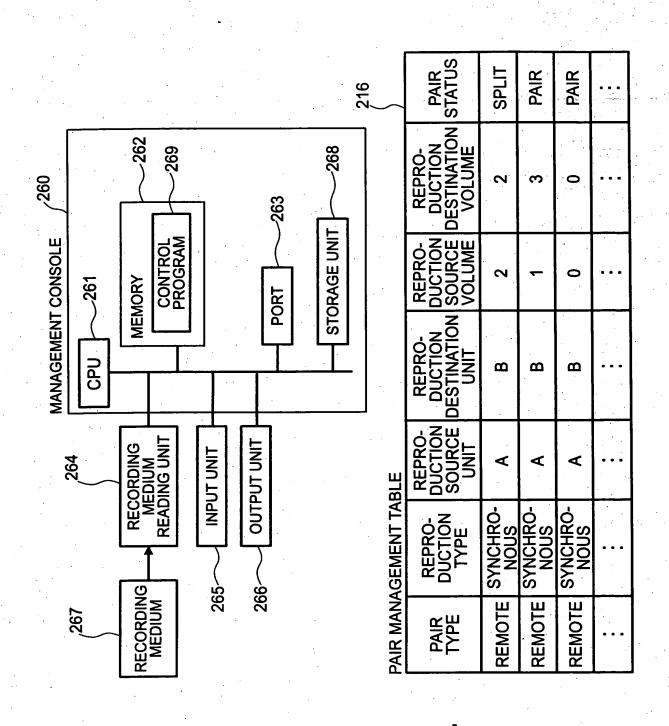
FIG.2



Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 3 of 19



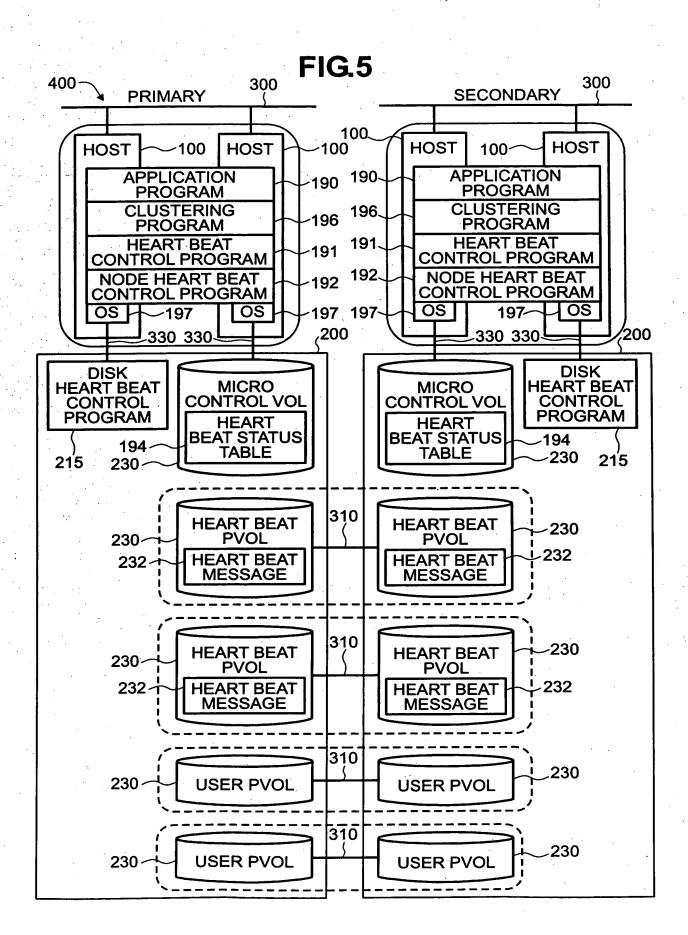
-1G3

164

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 4 of 19



(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 5 of 19

FIG.6

ACTIVATION/INACTIVATION MESSAGE (195)

ACTIVATION/INACTIVATION TYPE

DISK HEART BEAT/NODE HEART BEAT

LOCAL DEVICE ADDRESS

REMOTE DEVICE ADDRESS

FIG.7

HEART BEAT STATUS TABLE (194)

NODE HEART BEAT STATUS

P/S TYPE (1)

LOCAL DEVICE ADDRESS (1)

REMOTE DEVICE ADDRESS (1)

DEVICE STATUS (1)

P/S TYPE (2)

LOCAL DEVICE ADDRESS (2)

REMOTE DEVICE ADDRESS (2)

DEVICE STATUS (2)

DISK HEART BEAT STATUS

P/S TYPE (3)

LOCAL DEVICE ADDRESS (3)

REMOTE DEVICE ADDRESS (3)

DEVICE STATUS (3)

P/S TYPE (4)

LOCAL DEVICE ADDRESS (4)

REMOTE DEVICE ADDRESS (4)

DEVICE STATUS (4)

(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 6 of 19

FIG.8

HEART BEAT MESSAGE (232)

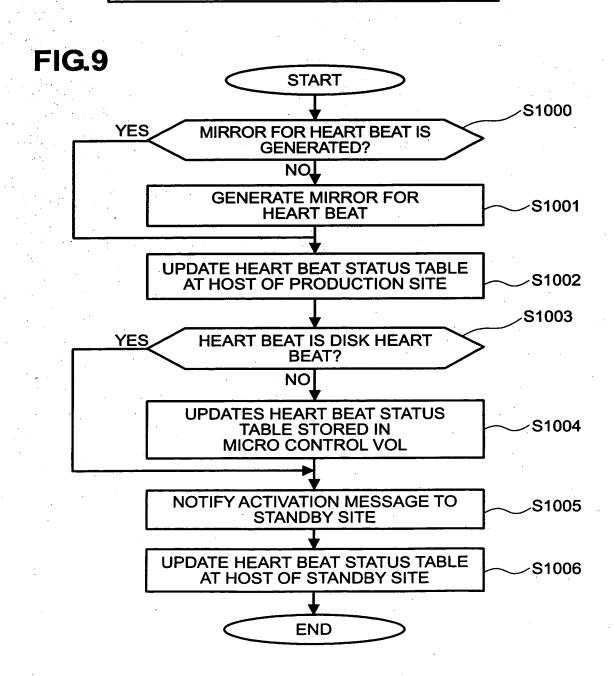
SERIAL NUMBER

TIME

DISK HEART BEAT/NODE HEART BEAT TYPE

LOCAL DEVICE ADDRESS

REMOTE DEVICE ADDRESS



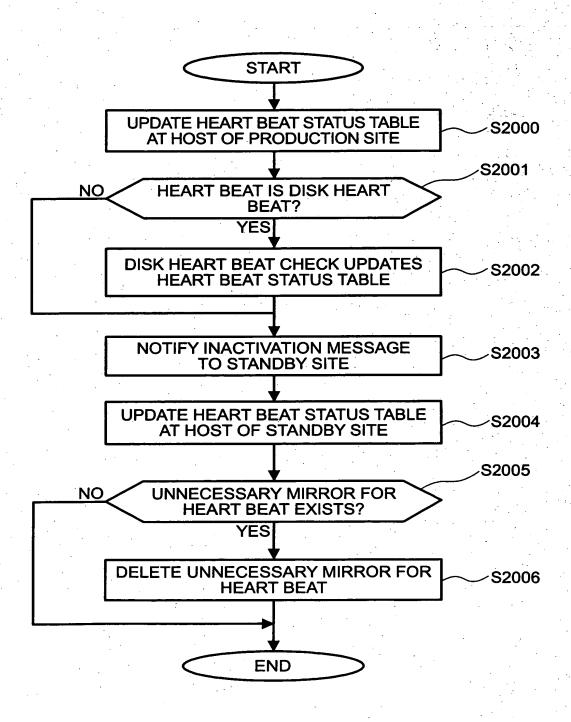
Robert C. Colwell, Reg. No. 27,431 (650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 7 of 19



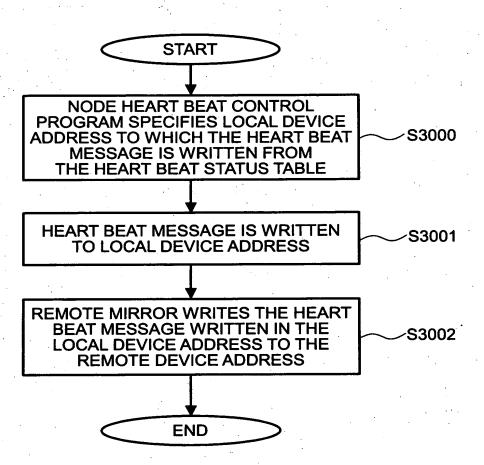
(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 8 of 19



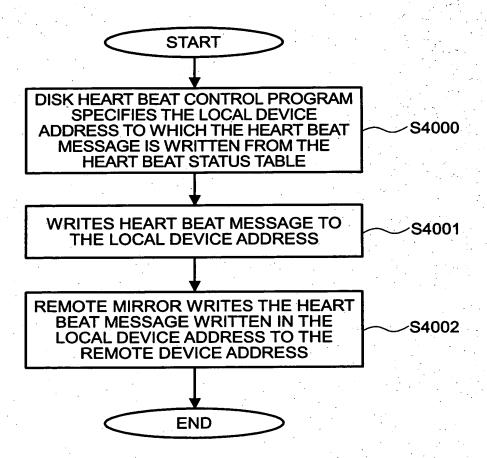
(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 9 of 19



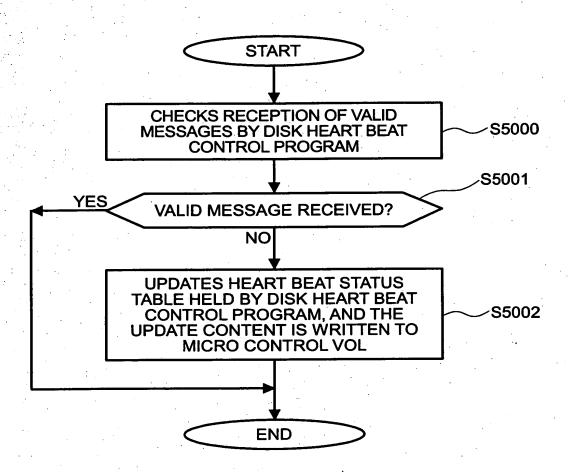
(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

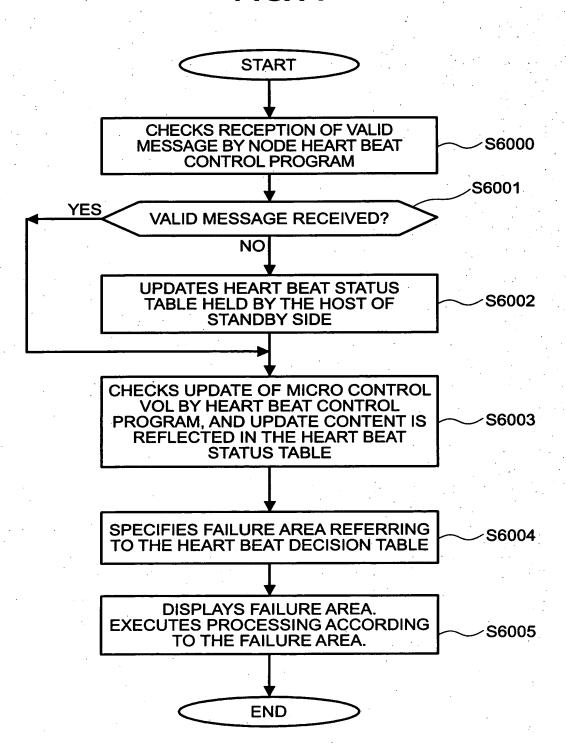
Sheet 10 of 19



Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 11 of 19



(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 12 of 19

FIG.15

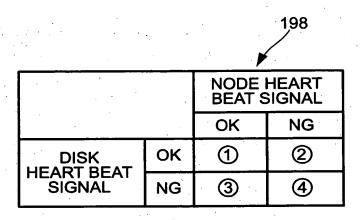
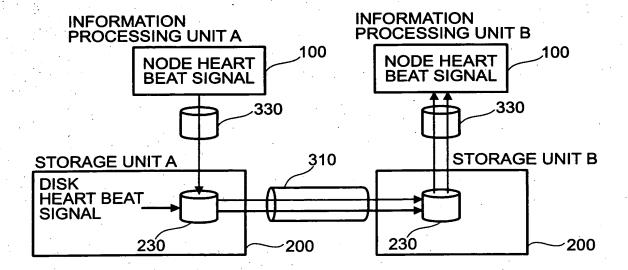


FIG.16



(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 13 of 19

	NCITAMACINI	STORAGE UNIT A	UNITA	/±i idivi		INCITAMOCIA	STORAGE UNIT B	UNIT B	/TI IQINI
	PROCESSING UNIT A	DISK CONTROL UNIT A	P-VOL	⊢ .	SECON	PROCESSING COUNT B	DISK CONTROL UNIT B	70A-S	OUTPUT PATH B
①	0	0	0	0	0	0	0	0	0
<u>@</u>	4	0	0	→	0	0	0	0	0
ල	0	4	0	0	0	0	0	0	0
a	~	•	▼	▼	•	~	•	4	•

FIG 17

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 14 of 19

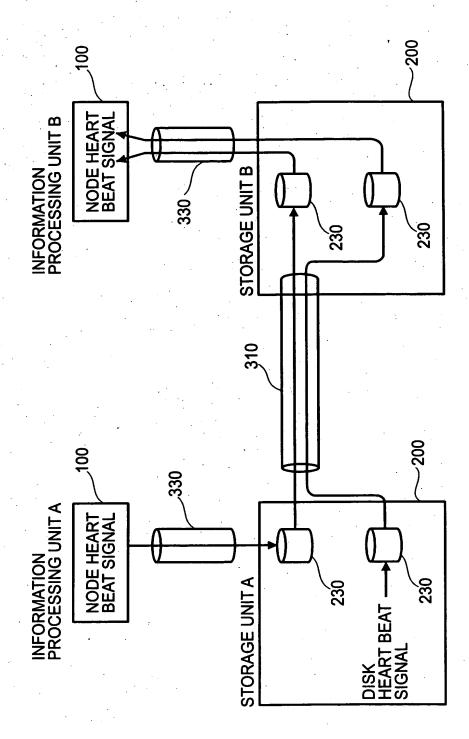


FIG.18

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 15 of 19

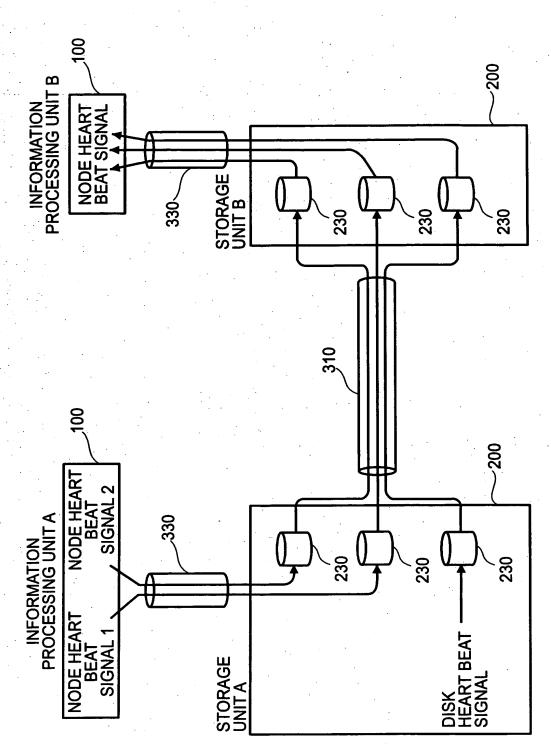
O
4
Q
$\tilde{-}$
ш

≝≥	NFOR-	STOR	STORAGE UNIT	4	ř.		INFOR- MATION	STOF	STORAGE UNIT B	r B	Ě
교었는	PRO- CESSING UNITA	DISK CONTROL UNIT A	P-VOL FOR NODE HB	P-VOL FOR DISK HB	OUTPUT PATHA	SECOND NETWORK	PRO- CESSING UNIT B	DISK CONTROL UNIT B	S-VOL FOR NODE HB	S-VOL FOR DISK HB	OUTPUT PATH B
	0	0	0	0	0	0	0	0	0	0	0
	◄	0	4	0	•	0	0	0	4	0	0
	0	4	0	◀.	0	0	0	0	0	4	0
	4	•	4		4	4	\	A		▼	4

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 16 of 19



-1G.20

(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 17 of 19

		NODE HEART BEAT SIGNAL 1						
		0	K	Ν	G			
		NODE BEAT S	HEART IGNAL 2	NODE BEAT S	HEART IGNAL 2			
		OK	NG	OK	NG			
DISK	ок	1	2	3	4			
HEART BEAT SIGNAL	NG	(5)	6	7	8			

(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 18 of 19

 					- 1				
INPUT/ OUTPUT PATH B		0	0	0	0	0	0	0	· ◀
,	S-VOL FOR DISK HB	0	0	0	0	*	•	•	•
E UNIT B	S-VOL 2 FOR NODE HB	0	4	0	A .	0	◄	0	•
STORAGE UNIT B	S-VOL 1 FOR NODE HB	0	0	•		0	0	◄	4
	DISK CONTROL UNIT B	0	0	0	0	0	0	0	4
INFOR- MATION	<u>(D</u>	0	0	0	0	0	0	0	◄
SECOND	NET- WORK	0	0	0	0	0	0	0	◀
/TI IdN	ООТРОТ РАТНА	0	0	0	•	0	0	0	4
	P-VOL FOR DISK HB	0	0	0	0	4	◄	4	4
STORAGE UNIT A	P-VOL 2 FOR NODE HB	0	4	0	•	0	◀	0	•
	P-VOL 1 P-VC FOR FO NODE HB NODE	0	0	•	4	0	0	•	•
	DISK CONTROL UNITA	0	0	0	0	0	0	0	4
MATION PRO- CESSING CONTROL UNITA UNITA		0	0	0	4	0	0	0	4

<u>(</u>

9

0

FIG 22

(650) 326-2400

Applicant: Shinichiro YAMASHITA

Title: Storage System, Control Method for Storage System, and...

Attorney Docket No. 16869P-111500US

Sheet 19 of 19

